



The Cost of Trade Distortion: Britain's Carbon Price Support and Cross-border Electricity Trade¹

Bowei Guo^{a,b} and David Newbery^a

EPRG Working Paper 2005

Cambridge Working Paper in Economics 2014

Abstract

An additional carbon tax in one market can distort electricity trade with external markets. We show how to estimate the deadweight cost of the distortion and possible external global benefits from reduced emissions, and investigate econometrically the impact of the British Carbon Price Support (CPS, an extra carbon tax) on GB's cross-border electricity trade with France and The Netherlands. Over 2015-2018 the CPS raised GB day-ahead electricity price by about €11/MWh, after allowing for replacement by cheaper imports. It raised French wholesale price by 3.5% and Dutch wholesale price by 2.8%. The CPS increased GB imports by 12 TWh/yr, thereby reducing carbon tax revenue by €100 m/yr. Congestion income increased by €150 m/yr, half transferred to foreign interconnector owners. The unilateral CPS created €80 m/yr deadweight loss, about 32% of the initial social value created by the interconnector, or 4% of the global emissions benefit of the CPS at €2 bn/yr. About 0.9% of the CO₂ emission reduction is undone by France and The Netherlands, the monetary loss of which is about €18m/yr.

Keywords Carbon tax; Bilateral Trading; Electricity Market; Cost-benefit analysis

JEL Classification Q48; F14; D61; C13

Affiliations: ^a Energy Policy Research Group, Faculty of Economics, University of Cambridge, Sidgwick Ave., Cambridge, CB3 9DD, UK; emails: bg347@cam.ac.uk, dmgn@cam.ac.uk,

^b Department of Applied Economics, Renmin University of China.

Contact
Publication
Financial Support

David Newbery, dmgn@cam.ac.uk
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¹ This replaces an earlier version of EPRG WP 1918, which seriously under-estimated the deadweight loss.